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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/729,058 | 12/04/2003 | Eung Don Lee | 2013P136 | 9167 |

8791 7590 06/04/2007
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| EXAMINER |
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STOFFREGEN, JOEL

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| ART UNIT | PAPER NUMBER |
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2626

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| MAIL DATE | DELIVERY MODE |
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06/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|-------------------------------|----------------------------|--|
| Office Action Summary | Application No. 10/729,058 | Applicant(s) LEE ET AL. | |
| | Examiner Joel Stoffregen | Art Unit 2626 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>12/04/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the original application filed on 12/04/2003.
2. Claims 1-9 are currently pending in this application. Claims 1, 2 and 9 are independent claims.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 12/04/2003 is being considered by the examiner.

Claim Objections

5. **Claims 1, 2, 8, and 9** are objected to because of the following informalities:

Claims 1, 2, 8, and 9 refer to "ACBG" and "NSR". These terms are not properly defined in the claims. There should be an indication as to what these terms are abbreviating before they are used; and

Claims 2 and 9 refer to two different "third threshold" values in steps (b) and (d). The examiner will consider the threshold value in step (b) to be the second threshold value and the threshold value in step (d) to be the third threshold value.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 1, 2, 3, 5, 7, 8 and 9** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The first limitation of claims 1, 2, and 9 allow for a choice between "at least one of a fixed code-book gain value, an adaptive code-book gain value, a noise to signal rate, and a pitch delay" (page 10, lines 5-7, lines 27-29 and page 12, lines 5-7).

Subsequent limitations depend on only a portion of these features (e.g. "value that is predetermined for the adaptive code-book gain value" and "change in the ACBG value or a difference between the maximum value and the minimum value of the pitch delay").

Since it is possible to choose to use only one feature from the first limitation, the following limitations may not correspond to the chosen feature. For example, if only the "fixed code-book gain value" were chosen, the following limitations dependent on the "adaptive code-book gain value" could not be calculated.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gao et al. Patent No.: US 6,574,593 ("GAO").

10. Regarding **claim 1**, GAO teaches an apparatus for determining a transmission rate, the apparatus comprising:

a speech/silence classifying portion, which classifies an input frame as speech or silence, ("determine if the pre-processed speech signal 308 is some form of speech or if it is merely silence or background noise", column 35, lines 49-51) based on a first threshold value that is predetermined ("using a set of predetermined threshold values", column 35, line 56) for at least one of a fixed code-book gain value, an adaptive code-book gain value, a noise to signal rate, and a pitch delay that correspond to an input parameter of a coded bit stream ("uses the parameters of the pitch lag and the adaptive codebook gain from recent frames", column 35, lines 66-67);

a voiced/unvoiced classifying portion, which classifies as voiced or unvoiced an input frame that is classified as speech ("detection of an unvoiced noise-like speech frame", column 36, line 20), based on a second threshold value that is predetermined

for the adaptive code-book gain value ("based on the pre-processed speech signal 308", column 36, lines 21-22, where the pre-processed speech signal contains adaptive codebook gain values, see column 36, lines 2-3);

a voiced/non-stationary classifying portion, which classifies as voiced or non-stationary an input frame that is classified as voiced by the voiced/unvoiced classifying portion, based on a class of a previous frame ("determines whether a frame with a characterization as a voiced frame should be characterized as class 4—'Non-Stationary Voiced', or class 5—'Stationary Voiced'", column 42, lines 24-27);

a voiced classifying portion, which classifies as stationary or non-stationary an input frame that is classified as voiced by the voiced/non-stationary classifying portion ("determines whether a frame with a characterization as a voiced frame should be characterized as class 4—'Non-Stationary Voiced', or class 5—'Stationary Voiced'", column 42, lines 24-27), based on a third threshold value that is predetermined for the amount of change in the ACBG value or a difference between the maximum value and the minimum value of the pitch delay ("characterization module 328 performs characterization using, for example, the pre-processed speech signal 308", column 37, lines 19-20, where the pre-processed speech signal contains adaptive codebook gain values and pitch lags, see column 36, lines 2-3); and

a transmission rate determining portion, which determines a transmission rate and a type of the determined transmission rate for an input frame, based on transmission rates and types of the transmission rates that are predetermined for a class of the input frame corresponding to the result of classification ("rate selection is

based on the characterization of the frame of the speech signal”, column 10, lines 9-10, and “the final characterization class may also be used by the type classification module”, column 42, lines 44,45).

11. Regarding **claim 2**, GAO teaches a method of determining a transmission rate in speech transcoding, the method comprising:

(a) classifying an input frame as speech or silence (“determine if the pre-processed speech signal 308 is some form of speech or if it is merely silence or background noise”, column 35, lines 49-51) based on a first threshold value that is predetermined (“using a set of predetermined threshold values”, column 35, line 56) for at least one of a fixed code-book gain value, an adaptive code-book gain value, a noise to signal rate, and a pitch delay that correspond to an input parameter of a coded bit stream (“uses the parameters of the pitch lag and the adaptive codebook gain from recent frames”, column 35, lines 66-67);

(b) classifying as voiced or unvoiced an input parameter that is classified as speech (“detection of an unvoiced noise-like speech frame”, column 36, line 20), based on a second threshold value that is predetermined for the amount of change in the ACBG value or a difference between the maximum value and the minimum value of the pitch delay (“based on the pre-processed speech signal 308”, column 36, lines 21-22, where the pre-processed speech signal contains adaptive codebook gain values, see column 36, lines 2-3);

(c) classifying as voiced or non-stationary an input frame that is classified as voiced, based on a class of a previous frame ("determines whether a frame with a characterization as a voiced frame should be characterized as class 4—'Non-Stationary Voiced', or class 5—'Stationary Voiced'", column 42, lines 24-27);

(d) classifying as stationary or non-stationary an input frame that is classified as voiced ("determines whether a frame with a characterization as a voiced frame should be characterized as class 4—'Non-Stationary Voiced', or class 5—'Stationary Voiced'", column 42, lines 24-27), based on a third threshold value that is predetermined for the amount of change in the ACBG value or a difference between the maximum value and the minimum value of the pitch delay ("characterization module 328 performs characterization using, for example, the pre-processed speech signal 308", column 37, lines 19-20, where the pre-processed speech signal contains adaptive codebook gain values and pitch lags, see column 36, lines 2-3); and

(e) determining a transmission rate and a type of the determined transmission rate for an input frame, based on transmission rates and types of the transmission rates that are predetermined for a class of the input frame corresponding to the result of classification ("rate selection is based on the characterization of the frame of the speech signal", column 10, lines 9-10, and "the final characterization class may also be used by the type classification module", column 42, lines 44,45).

12. Regarding **claim 3**, GAO further teaches that in step (a), the input frame is classified as speech or silence ("determine if the pre-processed speech signal 308 is

some form of speech or if it is merely silence or background noise", column 35, lines 49-51) based on the first threshold value that is predetermined ("using a set of predetermined threshold values", column 35, line 56) for the adaptive code-book gain value corresponding to the input parameter ("uses the parameters of the pitch lag and the adaptive codebook gain from recent frames", column 35, lines 66-67).

13. Regarding **claim 4**, GAO further teaches that the first threshold value is set to be smaller than the second threshold value ("characterizing the frame into one of 6 classes according to the dominant features of the frame", see column 36, lines 61-67, unvoiced/voiced classes are higher than the silence class).

14. Regarding **claim 5**, GAO further teaches that in step (a), the input frame is classified as speech or silence ("determine if the pre-processed speech signal 308 is some form of speech or if it is merely silence or background noise", column 35, lines 49-51) based on a fourth threshold value that is predetermined ("using a set of predetermined threshold values", column 35, line 56) for the difference between the maximum value and the minimum value of the pitch delay ("uses the parameters of the pitch lag and the adaptive codebook gain from recent frames", column 35, lines 66-67).

15. Regarding **claim 6**, GAO further teaches that the fourth threshold value is set to be larger than the third threshold value ("characterizing the frame into one of 6 classes

according to the dominant features of the frame", see column 36, lines 61-67, stationary/non-stationary classes are higher than the silence class).

16. Regarding **claim 7**, GAO further teaches that in step (a), the input frame is classified as speech or silence ("determine if the pre-processed speech signal 308 is some form of speech or if it is merely silence or background noise", column 35, lines 49-51) based on a fifth threshold value that is predetermined ("using a set of predetermined threshold values", column 35, line 56) for the fixed code-book gain value ("based on monitoring a plurality of parameters", column 35, line 60).

17. Regarding **claim 8**, GAO further teaches that the NSR for the input frame is smaller than a sixth threshold value ("NSR calculation ensures that only true background noise is included in the ratio by using a modified voice activity decision", column 38, lines 4-6, therefore the NSR is smaller than a noise threshold value).

18. Regarding **claim 9**, GAO teaches a computer readable recording medium having recorded thereon a program for a method of determining a transmission rate in speech transcoding, the method comprising:

(a) classifying an input frame as speech or silence ("determine if the pre-processed speech signal 308 is some form of speech or if it is merely silence or background noise", column 35, lines 49-51) based on a first threshold value that is predetermined ("using a set of predetermined threshold values", column 35, line 56) for

at least one of a fixed code-book gain value, an adaptive code-book gain value, a noise to signal rate, and a pitch delay that correspond to an input parameter of a coded bit stream ("uses the parameters of the pitch lag and the adaptive codebook gain from recent frames", column 35, lines 66-67);

(b) classifying as voiced or unvoiced an input parameter that is classified as speech ("detection of an unvoiced noise-like speech frame", column 36, line 20), based on a second threshold value that is predetermined for the amount of change in the ACBG value or a difference between the maximum value and the minimum value of the pitch delay ("based on the pre-processed speech signal 308", column 36, lines 21-22, where the pre-processed speech signal contains adaptive codebook gain values, see column 36, lines 2-3);

(c) classifying as voiced or non-stationary an input frame that is classified as voiced, based on a class of a previous frame ("determines whether a frame with a characterization as a voiced frame should be characterized as class 4—'Non-Stationary Voiced', or class 5—'Stationary Voiced'", column 42, lines 24-27);

(d) classifying as stationary or non-stationary an input frame that is classified as voiced ("determines whether a frame with a characterization as a voiced frame should be characterized as class 4—'Non-Stationary Voiced', or class 5—'Stationary Voiced'", column 42, lines 24-27), based on a third threshold value that is predetermined for the amount of change in the ACBG value or a difference between the maximum value and the minimum value of the pitch delay ("characterization module 328 performs characterization using, for example, the pre-processed speech signal 308", column 37,

lines 19-20, where the pre-processed speech signal contains adaptive codebook gain values and pitch lags, see column 36, lines 2-3); and

19. (e) determining a transmission rate and a type of the determined transmission rate for an input frame, based on transmission rates and types of the transmission rates that are predetermined for a class of the input frame corresponding to the result of classification ("rate selection is based on the characterization of the frame of the speech signal", column 10, lines 9-10, and "the final characterization class may also be used by the type classification module", column 42, lines 44,45).

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. A list of the pertinent prior art can be found on the included form PTO-892, Notice of References Cited.

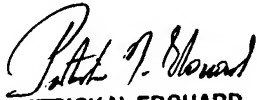
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joel Stoffregen whose telephone number is (571) 270-1454. The examiner can normally be reached on Monday - Friday, 9:00 a.m. - 6:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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